CLAIMS

What is claimed is:

1. A method for receiving signals in a wireless communication system, the method comprising:

receiving a plurality of user signals in a shared spectrum;

producing samples of the received user signals as a received vector;

segmenting the received vector into a plurality of segments;

for each segment, successively determining symbols for each user by determining symbols for one user and removing a contribution of that one user from the received vector; and

assembling the determined symbols corresponding to each segment into a data vector.

2. The method of claim 1 wherein each segment has a portion overlapping with another segment.

3. The method of claim 2 wherein the overlapping portion is at least two times (an impulse response length less one chip).

4. The method of claim 2 further comprising storing each segment determined symbols, after truncating determined symbols.

5. The method of claim 1 wherein the successively determining symbols for each user comprises equalizing an input vector, despreading the equalized vector and making hard decisions on the despread equalized vector.

6. The method of claim 5 wherein the equalizing the input vector uses fast Fourier transforms.

7. A method for receiving signals in a wireless communication system, the method comprising:

receiving a plurality of signals in a shared spectrum;

producing samples of the received signals as a received vector;

segmenting the received vector into a plurality of segments;

grouping the received signals by received power level;

for each segment, successively determining symbols for each group by determining symbols for one group and removing a contribution of that one group from the received vector; and

assembling the determined symbols corresponding to each segment into a data vector.

8. The method of claim 7 wherein each segment has a portion overlapping with another segment.

9. The method of claim 8 wherein the overlapping portion is at least two times (an impulse response length less one chip).

10. The method of claim 8 further comprising storing each segment determined symbols, after truncating determined symbols.

11. The method of claim 7 wherein the successively determining symbols for each user comprises equalizing an input vector, despreading the equalized vector and making hard decisions on the despread equalized vector.

12. The method of claim 11 wherein the equalizing the input vector uses fast Fourier transforms.

13. A wireless transmit/receive unit (WTRU) comprising:

an antenna receiving a plurality of user signals in a shared spectrum;

a sampling device producing samples of the received user signals as a received vector;

a segmentation device segmenting the received vector into a plurality of segments;

a equalization and successive interference canceller successively determining symbols for each user by determining symbols for one user and removing a contribution of that one user from the received vector; and

a segment reassembly device assembling the determined symbols corresponding to each segment into a data vector.

14. The WTRU of claim 13 wherein each segment has a portion overlapping with another segment.

15. The WTRU of claim 14 wherein the overlapping portion is at least two times (an impulse response length less one chip).

16. The WTRU of claim 14 further comprising a segment storing device for storing each segment determined symbols, after truncating determined symbols.

17. The WTRU of claim 16 wherein the equalization and successive interference canceller comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

18. The WTRU of claim 17 wherein the equalizing the input vector uses fast Fourier transforms.

19. A wireless transmit/receive unit (WTRU) comprising:

means for receiving a plurality of user signals in a shared spectrum;

means for producing samples of the received user signals as a received vector;

means for segmenting the received vector into a plurality of segments;

means for successively determining symbols for each user by determining symbols for one user and removing a contribution of that one user from the received vector; and

means for assembling the determined symbols corresponding to each segment into a data vector.

20. The WTRU of claim 19 wherein each segment has a portion overlapping with another segment.

21. The WTRU of claim 20 wherein the overlapping portion is at least two times (an impulse response length less one chip).

22. The WTRU of claim 20 further comprising means for storing each segments determined symbols, after truncating determined symbols.

23. The WTRU of claim 22 wherein the means for successively determining symbols comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

24. The WTRU of claim 23 wherein the equalizing the input vector uses fast Fourier transforms.

25. A wireless transmit/receive unit (WTRU) comprising:

an antenna receiving a plurality of user signals in a shared spectrum;

a sampling device producing samples of the received signals as a received vector;

a segmentation device segmenting the received vector into a plurality of segments;

a equalization and successive interference canceller, for each group of received signals having a similar power level, successively determining symbols for each group by determining symbols for one group and removing a contribution of that one group from the received vector; and

a segment reassembly device assembling the determined symbols corresponding to each segment into a data vector.

26. The WTRU of claim 25 wherein each segment has a portion overlapping with another segment.

27. The WTRU of claim 26 wherein the overlapping portion is at least two times (an impulse response length less one chip).

28. The WTRU of claim 26 further comprising a segment storing device for storing each segment determined symbols, after truncating determined symbols.

29. The WTRU of claim 28 wherein the equalization and successive interference canceller comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

30. The WTRU of claim 29 wherein the equalizing the input vector uses fast Fourier transforms.

31. A wireless transmit/receive unit (WTRU) comprising:

means for receiving a plurality of signals in a shared spectrum;

means for producing samples of the received signals as a received vector;

means for segmenting the received vector into a plurality of segments;

means for successively determining symbols for each group of received signals having a similar power level by determining symbols for one group and removing a contribution of that one group from the received vector; and

means for assembling the determined symbols corresponding to each segment into a data vector.

32. The WTRU of claim 31 wherein each segment has a portion overlapping with another segment.

33. The WTRU of claim 32 wherein the overlapping portion is at least two times (an impulse response length less one chip).

34. The WTRU of claim 32 further comprising means for storing each segments determined symbols, after truncating determined symbols.

35. The WTRU of claim 34 wherein the means for successively determining symbols comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

36. The WTRU of claim 35 wherein the equalizing the input vector uses fast Fourier transforms.

37. A base station comprising:

an antenna receiving a plurality of user signals in a shared spectrum;

a sampling device producing samples of the received user signals as a received vector;

a segmentation device segmenting the received vector into a plurality of segments;

a equalization and successive interference canceller successively determining symbols for each user by determining symbols for one user and removing a contribution of that one user from the received vector; and

a segment reassembly device assembling the determined symbols corresponding to each segment into a data vector.

38. The base station of claim 37 wherein each segment has a portion overlapping with another segment.

39. The base station of claim 38 wherein the overlapping portion is at least two times (an impulse response length less one chip).

40. The base station of claim 38 further comprising a segment storing device for storing each segment determined symbols, after truncating determined symbols.

41. The base station of claim 40 wherein the equalization and successive interference canceller comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

42. The base station of claim 41 wherein the equalizing the input vector uses fast Fourier transforms.

43. A base station comprising:

means for receiving a plurality of user signals in a shared spectrum;

means for producing samples of the received user signals as a received vector;

means for segmenting the received vector into a plurality of segments;

means for successively determining symbols for each user by determining symbols for one user and removing a contribution of that one user from the received vector; and

means for assembling the determined symbols corresponding to each segment into a data vector.

44. The base station of claim 43 wherein each segment has a portion overlapping with another segment.

45. The base station of claim 44 wherein the overlapping portion is at least two times (an impulse response length less one chip).

46. The base station of claim 44 further comprising means for storing each segments determined symbols, after truncating determined symbols.

47. The base station of claim 46 wherein the means for successively determining symbols comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

48. The base station of claim 47 wherein the equalizing the input vector uses fast Fourier transforms.

49. A base station comprising:

an antenna receiving a plurality of user signals in a shared spectrum;

a sampling device producing samples of the received signals as a received vector;

a segmentation device segmenting the received vector into a plurality of segments;

a equalization and successive interference canceller, for each group of received signals having a similar power level, successively determining symbols for each group by determining symbols for one group and removing a contribution of that one group from the received vector; and

a segment reassembly device assembling the determined symbols corresponding to each segment into a data vector.

50. The base station of claim 49 wherein each segment has a portion overlapping with another segment.

51. The base station of claim 50 wherein the overlapping portion is at least two times (an impulse response length less one chip).

52. The base station of claim 50 further comprising a segment storing device for storing each segment determined symbols, after truncating determined symbols.

53. The base station of claim 51 wherein the equalization and successive interference canceller comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

54. The base station of claim 53 wherein the equalizing the input vector uses fast Fourier transforms.

55. A base station comprising:

means for receiving a plurality of signals in a shared spectrum;

means for producing samples of the received signals as a received vector;

means for segmenting the received vector into a plurality of segments;

means for successively determining symbols for each group of received signals having a similar power level by determining symbols for one group and removing a contribution of that one group from the received vector; and

means for assembling the determined symbols corresponding to each segment into a data vector.

56. The base station of claim 55 wherein each segment has a portion overlapping with another segment.

57. The base station of claim 56 wherein the overlapping portion is at least two times (an impulse response length less one chip).

58. The base station of claim 56 further comprising means for storing each segments determined symbols, after truncating determined symbols.

59. The base station of claim 58 wherein the means for successively determining symbols comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

60. The base station of claim 59 wherein the equalizing the input vector uses fast Fourier transforms.

61. An integrated circuit comprising:

a segmentation device segmenting a received vector of a plurality of user signals into a plurality of segments;

an equalization and successive interference canceller successively determining symbols for each user by determining symbols for one user and removing a contribution of that one user from the received vector; and

a segment reassembly device assembling the determined symbols corresponding to each segment into a data vector.

62. The integrated circuit of claim 61 wherein the equalization and successive interference canceller comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.

63. An integrated circuit comprising:

a segmentation device segmenting a received vector of a plurality of signals into a plurality of segments;

an equalization and successive interference canceller, for each group of received signals having a similar power level, successively determining symbols for each group by determining symbols for one group and removing a contribution of that one group from the received vector; and

a segment reassembly device assembling the determined symbols corresponding to each segment into a data vector.

64. The integrated circuit of claim 63 wherein the equalization and successive interference canceller comprises an equalizer equalizing an input vector, a despreader despreading the equalized vector and a hard decision device making hard decisions on the despread equalized vector.